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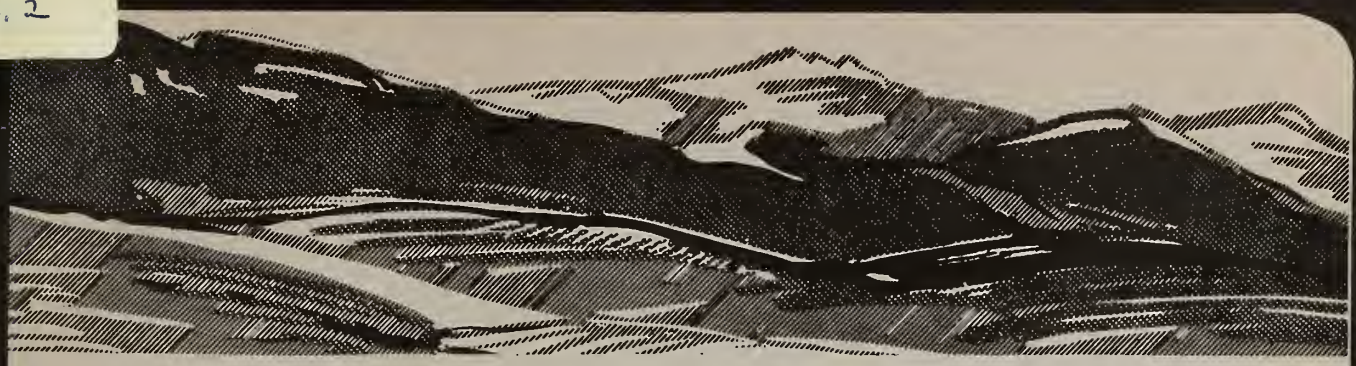

RANGE IMPROVEMENT NOTES

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FOREST SERVICE — U. S. DEPARTMENT OF AGRICULTURE
INTERMOUNTAIN REGION — OGDEN, UTAH

STATEMENT OF PURPOSE

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This publication is printed primarily to inform professional range administrators of important range improvement and management developments and findings. These "NOTES" may include extracts of published papers, unpublished preliminary reports of research work, unpublished reports on administrative studies and personal observations or suggestions of other range administrators. No claim is made as to the accuracy or completeness of studies or conclusions drawn.

All who read these RANGE IMPROVEMENT NOTES are encouraged to submit material for publication, or suggestions for improving its usefulness. Full credit will be given for any material used.

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GRAZING TIPS TO FOLLOW IN THE SPRING

By

William A. Laycock*

Three "Don'ts" for spring grazing on sagebrush-grass ranges are offered sheepmen as a result of U.S. Forest Service studies at the U.S. Sheep Experiment Station near Dubois, Idaho. They are:

1. Don't graze too early. Spring grazing should not start until the main grass is at least 2 1/2 inches tall. This would be bluebunch wheatgrass in most areas.

2. Don't graze too heavily. A good general rule on ranges grazed both in spring and fall is to use no more than one-third of the grass and one-half of the forbs (commonly called weeds). However, proper use can't be stated in a given number of sheep days per acre because ranges differ in productivity.

3. Don't graze the same area the same time each spring. Rotation grazing prevents the same plants from being grazed at the most damaging time each year. In this way, you can safely graze your ranges a little more heavily than if you graze the same area throughout the spring.

"We recognize that most ranchers must use sagebrush-grass ranges in the spring, "says W. A. Laycock, range scientist on the staff of the Intermountain Forest and Range Experiment Station. "However, our studies have demonstrated that these three precautions are necessary to prevent damage to the range."

Good ranges have thin stands of sagebrush and produce large volumes of grasses and forbs. If grazed improperly, the grasses decrease and forbs may entirely disappear. This allows invasion of the undesirable cheatgrass. This means less forage for sheep. Equally serious, the sagebrush becomes so dense that it hinders sheep movement. An example is shown in the photos.

Why does heavy spring grazing damage the range.

This is the time when grasses and forbs produce most of their yearly growth. If too much is eaten by sheep during this period, the plants are unable to make and store enough food in their roots to survive the following winter. Those that do survive, moreover become smaller and less vigorous. Sagebrush is eaten by sheep only in the fall. Consequently, it takes over on ranges grazed improperly in the spring year after year, Laycock explained. On ranges where this has occurred, rest in the spring and heavy grazing in the fall will decrease the sagebrush and increase desirable grasses and forbs.

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*Published in OREGON FARMER, UTAH FARMER, WASHINGTON FARMER, IDAHO FARMER, and MONTANA FARMER-STOCKMAN - March 7, 1968.

Here is what happened to sagebrush-grass range near Dubois, Idaho.

A. 1952 - Shows good range with large, vigorous arrowleaf balsamroot plants (left foreground and center background) and small scattered sagebrush plants.

B. 1955 - Shows a definite decrease in size and vigor of the balsamroot plants. Sheep had eaten as much as 90% of the balsamroot plants each year as well as more than 50% of the grass.

C. 1958 - The balsamroot plants had been completely eradicated.

D. 1964 - Sagebrush had increased 75% since 1952 and the spring forage plants had been almost completely eliminated.

The following is abstracted from
ROTATION GRAZING ON WYOMING'S BIG HORN MOUNTAINS*
Agricultural Experiment Station, Research Journal 13,
University of Wyoming, October - 1967, page 24

Three systems of grazing management were compared on the Big Horn Mountains of Wyoming from 1959-1964. As a basis for comparison, one unit was stocked at a moderate rate and grazed season long. An adjacent unit, stocked at the same rate as the season-long range, contained three subunits that were grazed in rotation. A third unit was stocked at one and one-half times the rate of the other two, and its three subunits also were grazed in rotation.

Idaho fescue, the key management species, was not utilized on the season-long unit until mid-August. Prior to that time, steers grazed forage growing on alluvial soils. Conversely, Idaho fescue was utilized moderately as early as the latter part of July in the rotation systems.

On soils of granitic origin, production of Idaho fescue was maintained equally well on the three units. On soils derived from sedimentary rocks the abundance of Idaho fescue declined within the heavy rotation range. The lower yields occurred on that unit even though utilization did generally exceed the level which maintains Idaho fescue under season-long use. Cover of Idaho fescue, like production, was maintained best in the season-long unit.

The difference in daily gain between the moderately stocked units was not significant. Lower daily gain in the heavy rotation system indicates that stocking rates had more effect on animal unit production than systems of grazing.

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*Taken from Range and Wildlife Abstracts - Rocky Mountain Region, 2/5/68

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Well-balanced people never try to throw their weight around.

* * * * *

THE ROLE OF NATURAL AREAS IN MANAGING RANGES

L. A. Stoddart*
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Rangeland often is not producing forage commensurate with its potential. Ranchers and technical managers alike are easily confused as to whether low-producing range is degenerate from misuse or is inherently limited in potential. Therefore, an ungrazed check area is valuable as a "capability" index.

Stockmen tend to belittle such use of natural areas because of the implied objective--namely, having economic, preducing ranch land appear the same as unused land!

Unfortunately, too many technicians also misread the intent of this procedure and conclude that climax vegetation is a "must" objective in range management.

Range condition classification, as ordinarily used, measures deviation from natural conditions. By definition, our terms "excellent" and "good" somewhat imply that ranges can't be much good if they have been grazed or otherwise treated in an unnatural way. Of course, this is somewhat facetious, but nonetheless it is wrong to imply that climax ranges are necessarily the best ranges or that introduced plants are necessarily the best ranges or that introduced plants are necessarily bad.

In fact, animals perhaps should be "matched" with the vegetation upon which they feed. Although natural vegetations were best suited to buffalo and prairie dogs, there may be question whether they best suit cattle, or especially, sheep (nor even deer, prong-horn, elk, or moose) so well as do some subclimax ranges maybe only in fair shape. Yet the above animals are the ones for which American ranges are managed today. After all, cattle and sheep themselves are not natural.

Now, are climax ranges the best source of nutrients for livestock and game? Not necessarily so according to Cook's data. Neither digestibility nor forage production on desert ranges was affected by range condition, although forage consumption was less on poor ranges. On mountain ranges, poor-condition areas produced more total herbage and more browse, though good-condition areas produced more grass. Good range was higher in gross energy and cellulose, but poor range was higher in other carbohydrates and protein. Range condition did not influence forage intake of grazing sheep.

*Reprint from JOURNAL OF RANGE MANAGEMENT - February 12, 1968

It can be shown on climax grasslands that deterioration, resulting in some invasion of weeds and even shrubs, may increase livestock gains because of better-balanced diets.

This suggests that there is no clear-cut answer to the question as to how valuable "naturalness" is as a range management objective.

Stockmen should understand that study areas from which livestock are excluded are necessary if we are to delimit those lands upon which sparse and vigorless plants are the result of habitat limitations (infertile soil, salty soil, aridity, etc.) rather than grazing misuse. So long as these areas are not unrealistically large and do not unnecessarily interfere with livestock operations, everything favors the establishment and study of natural scientific areas.

Scientists should understand that economic use of land is basic to the food, fiber, and wool supply of America, and businesses should not arbitrarily be condemned because such use is not always consistent with the aesthetics of "naturalness."

The because-its-natural-its-best attitude is rather belied by the tripled forage production sometimes attainable in western America by use of completely unnatural grasses such as crested wheatgrass.

DOUBLE ANCHOR CHAIN

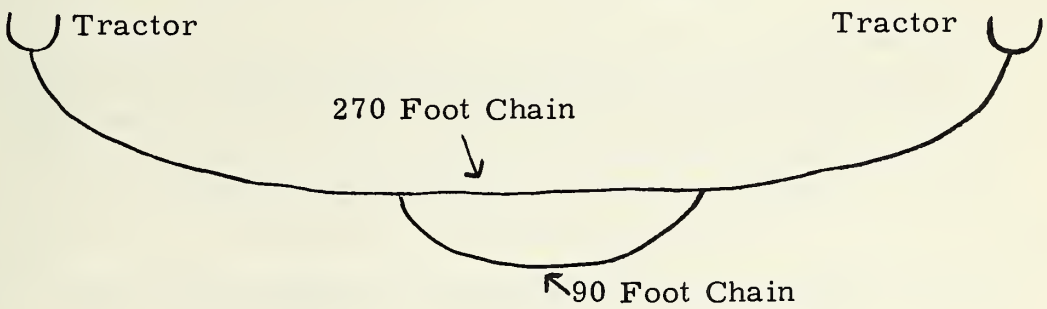
By
Darrel C. Hoffman*

In an attempt to achieve greater scarification for seedbed preparation on chaining projects, we have experimented with a double chain arrangement.

The chain consists of three shots of 40-pound link anchor chain with an extra shot (40-pound link) wrapped around the middle shot. The extra length is attached to the main chain by connector links.

The double chain arrangement thus proved to be very effective. The greater weight in the middle increases scarification and helps to hold the chain down when chaining trees. There was some thought that trees might wedge between the chains when back-chaining; however, this did not develop.

Wayne Cox and Owen Bundy, chaining contractors, both agree this was a very satisfactory arrangement. Equipment operators prefer to use a chain heavy in the center and light on the ends. The Sawtooth Forest experimented with an additional chain hooked to the middle shot of the main chain in a shallow arc about four feet back. (See sketch.)



This arrangement aided scarification and helped to pile the trees.

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*Chief, Branch of Range Management, Fishlake National Forest, Richfield, Utah.

The following information is summarized from
RESPONSE OF MOUNTAIN GRASSLAND VEGETATION TO CLIPPING IN SOUTHWESTERN MONTANA*
By
W. F. Meuggler, ECOLOGY 48(6); pp. 942-949, 1967

Livestock grazing generally upsets the dynamic equilibrium established between mountain grasslands and the environment under which they develop. This results in a readjustment of production and species composition which is dependent upon the relative sensitivity of individual species to grazing and upon the relative aggressiveness of the species present.

Herbage removal by clipping harmed the forbs much more than the grasses and caused a conspicuous shift toward grasses in total herbage composition Production of Aster integrifolius and Potentilla gracilis was affected adversely by a single clipping in July just before and during flowering; by the end of three years of clipping, herbage preduction of these species was reduced approximately 50 percent, and the number of flower stalks was reduced approximately 80 percent. The grasses, Festuca idahoensis, Bromus marginatus, and Agropyron trachycaulum, generally were most harmed by clipping in late July and August, from flowering to seed ripening. Removal of herbage, either during early growth or after the foliage began to dry, did not damage either the forbs or grasses appreciably on the mountain grassland studied. Both Bromus and Agropyron benefited temporarily from reduced forb competition. Total vegetative production did not decrease significantly until after three years of intensive clipping.

Undoubtedly many of our grasslands in the northern Rocky Mountains have undergone considerable change since the advent of grazing by domestic livestock. Information such as this on species sensitivity to herbage removal will not only help identify the change that has taken place, but more important, it will facilitate the development of grazing systems to either maintain or improve the productivity of these grasslands for cattle or sheep.

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*Taken from RANGE AND WILDLIFE DIGEST - Northern Region, 7/1/68

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Schedules are important but SAFETY comes first.

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Notes from WEED FIGHTER No. 66*

Dyer's Woad, a mustard family plant, is continuing to spread in Idaho. It is an escaped ornamental. The word "woad" comes from the Germanic "weedt" or "weeda" from which we got the term "weed."

Dyer's woad was cultivated as a dye plant in medieval times in Europe. Apparently this is why we call the plant "Dyer's Woad, " botanically known as Isatis Tinctoria L. It is a native of southeast Russia and has spread over the world from there. It appears to have escaped from gardens in Virginia and in some western states where it is developing into a serious weed problem.

* * * * * *

Studies by ARS in Montana have defined 10 different ecotypes of Canada thistle. These different types respond differently to herbicides. Now they have determined that they vary in the amount and kinds of materials (hydrocarbons, waxes, fatty acids, and alcohols) present on the leaf surfaces. These materials make up the waxy coat and cuticle. The types also vary in the ratio of epidermal cells to stomata. The differences were consistent for the ecotypes grown under three different altitude and rainfall environments in Montana and Idaho, and it appears that these differences explain part of the different responses to herbicides.

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In North Dakota a 30-year old crested wheatgrass pasture was restored to high productivity by control of weeds and application of 40 pounds of N per acre per year. After reaching a peak of 133 pounds of beef per acre the first year of grazing, it declined to an average of 70 pounds of beef per acre for the last seven years of the 30-year period. Controlling sage and fertilizing for four years resulted in a four-year average production of 159 pounds of beef per acre. The highest dollar return for cost of treatment came from the 2,4-D spray application for the control of sage, but a combination of spray and nitrogen resulted in 70 percent more forage.

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*Robert E. Higgins, Extension Agronomist, Agricultural Extension Service, College of Agriculture, University of Idaho, Boise, Idaho - April 23, 1968